

## **REMARKS**

This paper is presented in response to the Office Action. By this paper, claims 5, 13-14 and 17-18 are canceled, claims 1, 6-7, 10-12, 20-21, 25, 29 and 32 are amended, and new claims 33-40 are added. Claims 1-4, 6-12, 15-16 and 19-40 are now pending as a result of the aforementioned cancellations and new claims.

Reconsideration of this application is respectfully requested in view of the following remarks. For the convenience and reference of the Examiner, the remarks of the Applicants are presented in the order in which the corresponding issues were raised in the Office Action.

### **I. General Considerations**

Applicant notes that the remarks and amendments presented herein have been made merely to clarify the claimed embodiments from elements purported by the Examiner to be taught by the cited references. Such remarks, or a lack of remarks, and amendments are not intended to constitute, and should not be construed as, an acquiescence, on the part of the Applicant: as to the purported teachings or prior art status of the cited references; as to the characterization of the cited references advanced by the Examiner; or as to any other assertions, allegations or characterizations made by the Examiner at any time in this case. Applicant reserves the right to challenge the purported teaching and prior art status of the cited references at any appropriate time.

In addition, the remarks herein do not constitute, nor are they intended to be, an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed herein are presented solely by way of example. Consistent with the foregoing, the discussion herein is not intended, and should not be construed, to prejudice or foreclose contemporaneous or future consideration, by the Applicant, of additional or alternative distinctions between the claims of the present application and the references cited by the Examiner, and/or the merits of additional or alternative arguments.

### **II. Claim Rejections Under 35 U.S.C. § 102(b)**

Applicant respectfully notes that a claim is anticipated under 35 U.S.C. § 102(b) only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Further, the identical invention must be shown in as complete detail as is contained in the claim. Finally, the elements must be arranged as required by the claim. *See* Manual of Patent Examining Procedure ("M.P.E.P.") § 2131.

The Examiner has rejected claims 1-4, 6-17, 19-23, 24-30 and 32 under 35 U.S.C. § 102(b) as anticipated by one or more of US 6,111,934 to Foerst et al. ("*Foerst I*"), US 6,055,294 to Foerst et al.

(“*Foerst2*”) and US 5,548,630 to Hell et al. (“*Hell*”). Applicant disagrees with the contentions of the Examiner and submits that, for at least the reasons set forth herein, the rejection of those claims should be withdrawn.

**a. rejection of claims 1, 2, 4, 6-17, 19, 20, 23, 25-27 and 29 based on *Foerst1***

Applicant notes at the outset that claims 13, 14 and 17 have been canceled herein. Accordingly, the rejection of claims 13, 14 and 17 has been rendered moot and should be withdrawn. By this paper, Applicant has amended independent claim 1 to recite, in part “at least one magnetic element that defines an opening within which a portion of the emitter is positioned.” Support for this amendment can be found, for example, at Figures 1-4 of the application. Inasmuch as the Examiner has not established that any single reference teaches or suggests the aforementioned limitation in combination with the other limitations of claim 1, Applicant respectfully submits that the rejection of claim 1, as well as the rejection of corresponding dependent claims 2, 4 and 6-9, should be withdrawn.

Further, Applicant has amended independent claim 10 to recite a “magnetic emitter block.” Support for this amendment can be found in the specification at Figure 3 and paragraph [033] of the application. Inasmuch as the Examiner has not established that any single reference teaches or suggests the aforementioned limitation in combination with the other limitations of claim 10, Applicant respectfully submits that the rejection of claim 10, as well as the rejection of corresponding dependent claims 11-12, 15-16 and 19, should be withdrawn.

In addition, Applicant has amended independent claim 20 to recite “at least one magnetic element that defines an opening within which a portion of the emitter is positioned.” Support for this amendment can be found in the specification at Figures 1-4 of the application. Inasmuch as the Examiner has not established that any single reference teaches or suggests the aforementioned limitation in combination with the other limitations of claim 20, Applicant respectfully submits that the rejection of claim 20, as well as the rejection of corresponding dependent claims 23 and 25-27, should be withdrawn.

Finally, Applicant has amended independent claim 29 to recite “first and second magnetic elements that define respective openings within which the emitter block is positioned.” Support for this amendment can be found in the specification at Figures 1-4 of the application. Inasmuch as the Examiner has not established that any single reference teaches or suggests the aforementioned limitation in combination with the other limitations of claim 29, Applicant respectfully submits that the rejection of claim 29 should be withdrawn.

**b. rejection of claims 1, 7, 10, 20, 21, 29, 30 and 32 based on *Foerst2***

By this paper, Applicant has amended independent claims 1, 10, 20 and 29. Those claims, as well as their corresponding dependent claims 7, 21, 30 and 32, are believed to be in allowable condition for at

least the reasons set forth in the discussion at II.a. above. Accordingly, the attention of the Examiner is respectfully directed to such discussion.

**c. rejection of claims 1-3, 20, 22 and 28 based on *Hell***

By this paper, Applicant has amended independent claims 1, 10, 20 and 29. Those claims, as well as their corresponding dependent claims 2-3, 22 and 28, are believed to be in allowable condition for at least the reasons set forth in the discussion at II.a. above. Accordingly, the attention of the Examiner is respectfully directed to such discussion.

**III. Claim Rejections Under 35 U.S.C. § 103(a)**

Applicant respectfully notes at the outset that in order to establish a *prima facie* case of obviousness, it is the burden of the Examiner to demonstrate that three criteria are met: first, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; second, there must be a reasonable expectation of success; and third, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *MPEP* § 2143.

**a. rejection of claims 5, 18, 24 and 31**

The Examiner has rejected claims 5, 18, 24 and 31 under 35 U.S.C. § 103(a) as being unpatentable over *Foerst2* in view of US 4,631,744 to Haberrecker ("*Haberrecker*"). Applicant respectfully disagrees.

Applicant notes that inasmuch as claim 18 is canceled herein, the rejection of that claim is moot and should accordingly be withdrawn.

With regard to the remaining claims 5, 24 and 31, Applicant has amended independent claims 1, 10 and 29 as discussed at II.a above. By virtue of their dependence from independent claims 1, 10 and 29, respectively, claims 5, 24 and 31 include the limitations of those independent claims. As noted in such discussion however, the Examiner has not established that the cited references, either alone or in combination, teach or suggest all the limitations of claims 1, 10 and 29. Accordingly, Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness with respect to claims 5, 24 and 31, at least because even if the purported teachings of the cited references are combined in the allegedly obvious fashion, the resulting combinations fail to include all the limitations of those claims. Applicant thus respectfully submits that the rejection of claims 5, 24 and 31 should be withdrawn.

**b. canceled claim 5, amended claim 10, and new claim 40**

While independent claim 40 is added by this paper, Applicant has addressed claims 10 and 40 at this juncture inasmuch as the rejection of claim 5 (now canceled) under 35 U.S.C. § 103(a) is somewhat germane to claim 40, as well as to amended claim 10. New claim 40 reads as follows:

*A cathode head suitable for use in an x-ray, the cathode head comprising:  
a magnetic emitter block;  
an emitter attached to the emitter block; and  
at least one magnetic element arranged such that flux lines of a magnetic flux density B  
of a magnetic field associated with the at least one magnetic element are substantially  
perpendicular to a direction of travel of the electron beam.*

Amended claim 10 similarly requires a “magnetic emitter block.”

In rejecting claim 5, which likewise recited a “magnetic emitter block,” the Examiner conceded that *Foerst2* failed to disclose such an emitter block. However, the Examiner asserted that “It would have been obvious to ... employ the cathode head teachings of *Haberrecker* in the invention of *Foerst* to provide the X-ray tube with the cathode comprising magnetic emitter block because it would provide a predictable manner operating cathode such as no movement of the focus occurs cause to high operating temperature variations and/or some external magnetic field without input of the magnetic element disposed proximate the emitter to achieve a particular effect with respect to controlling the focal spot of the emitted electron beam.” Applicant respectfully disagrees.

While Applicant is unclear as to the precise nature of the benefits that the Examiner has asserted would flow from the allegedly obvious combination of *Foerst2* and *Haberrecker*, it appears to be the position of the Examiner that use of the *Haberrecker* emitter block in the *Foerst2* device would result in a cathode that would operate in a predictable manner and would enable focal spot control.

For example, *Foerst2* states in the “Summary of the Invention” that “An object of the present invention is to provide an X-ray tube of the type described above wherein the heat loss which occurs in the deflection of the electron beam is reduced, and without the occurrence of significant defocusing phenomena ...” *Col. 1, lines 53-56. Emphasis added.* Thus, *Foerst2* asserts that the disclosed X-ray tube operates without focusing problems. In view of the fact that *Foerst2* purports to disclose an X-ray device that provides focal spot control, it is not apparent why one of skill would be motivated to make the allegedly obvious combination.

Moreover, the Examiner has not established that the *Foerst2* device suffers from a lack of predictability in its operation that would, or even could, be remedied through the use of the *Haberrecker* emitter block. In view of this, it is not clear that one of skill in the art would have any motive to modify the *Foerst2* device in the allegedly obvious fashion.

Finally, the Examiner has failed to establish that no impairment of the operation of the *Foerst2* device would occur as a result of the allegedly obvious modification. Particularly, it is unclear what effect(s) may result from the addition of the magnetic *Haberrecker* emitter block to the *Foerst2* device

where, according to the Examiner, a non-magnetic emitter block existed. For example, the magnetic properties of the *Haberrecker* emitter block could conceivably interfere with the *Foerst2* electromagnets and/or with the ability of the *Foerst2* device to locate the focal spot. Inasmuch as it appears that the proposed modification could conceivably impair the operation of the *Foerst2* device, there would not appear to be any motivation to make the allegedly obvious combination.

In view of the foregoing discussion, Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness with respect to an arrangement such as that recited in claims 5 and 10, and new claim 40, at least because the Examiner has not established the existence of a suggestion or motivation to make the purportedly obvious combination, and because the Examiner has not established that there is a reasonable expectation that such combination would be successful.

Applicant thus respectfully submits that both new claim 40 and amended claim 10, are, accordingly, in allowable condition.

#### IV. New Claims 33-40

By this paper, Applicant has added new dependent claims 33-39. Inasmuch as those claims each depend from a claim believed to be in allowable condition, Applicant respectfully submits that claims 33-39 are likewise in allowable condition.

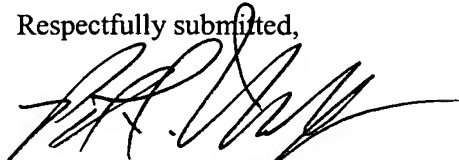
New independent claim 40 is believed to be in allowable condition for at least the reasons set forth at III.b.

**CONCLUSION**

In view of the remarks submitted herein, Applicant respectfully submits that each of the pending claims 1-4, 6-12, 15-16 and 19-40 is now in condition for immediate allowance. Therefore, reconsideration of the objections and rejections is requested and allowance of these claims is respectfully solicited. In the event that the Examiner finds any remaining impediment to a prompt allowance of this application that could be clarified in a telephonic interview, the Examiner is respectfully requested to initiate the same with the undersigned attorney.

Dated this 22<sup>nd</sup> day of February, 2006.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "P.F. Malen Jr.", with a long horizontal flourish extending to the right.

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